



Brimbank Aquatic and Wellness Centre - all electric, zero emissions project

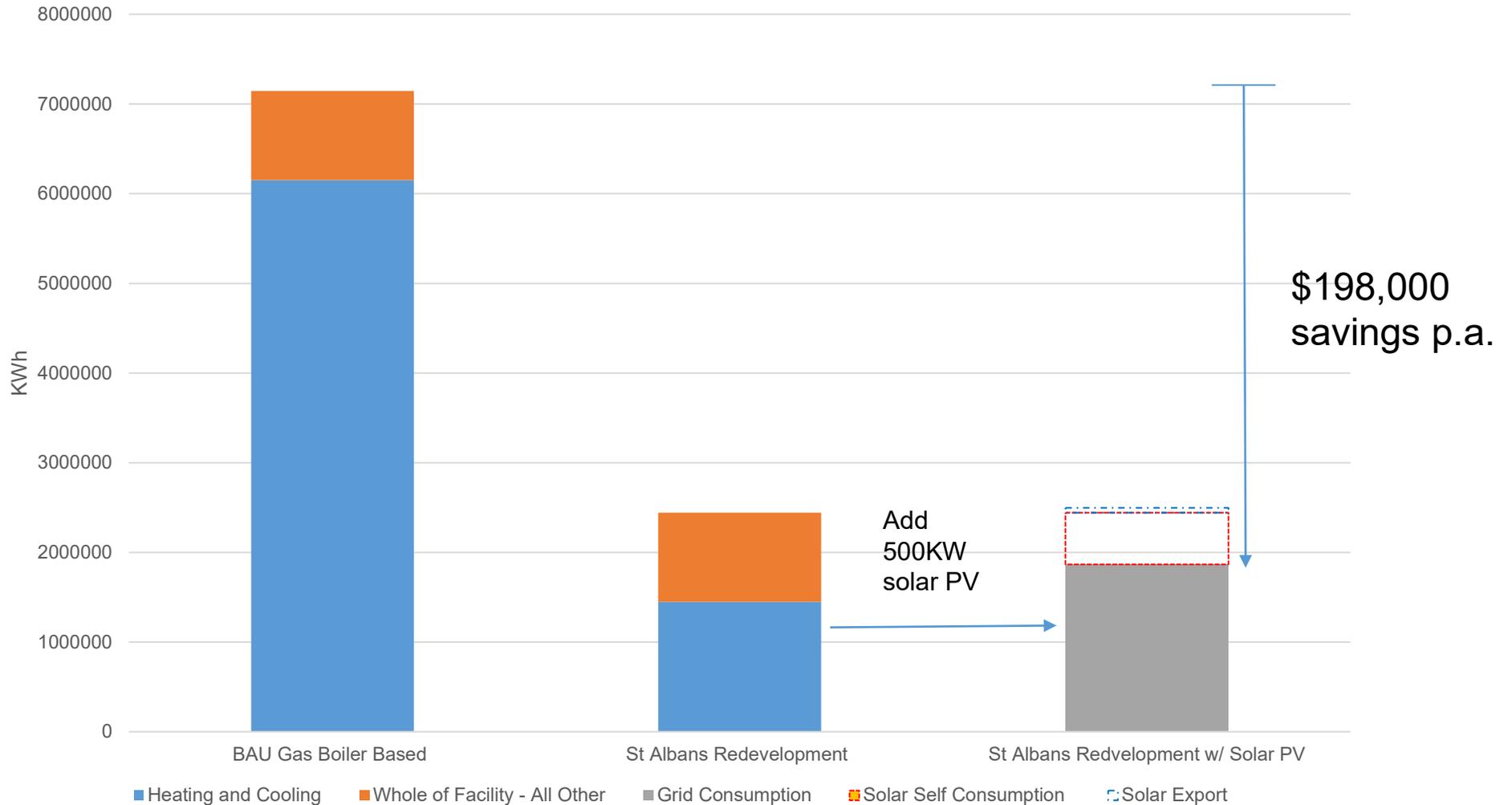


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Gas vs All-Electric – Whole of Facility Energy Footprint



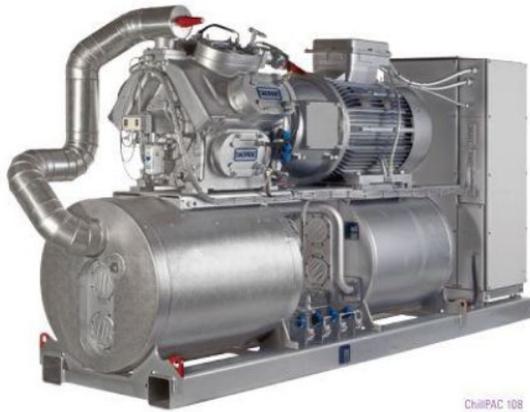
A high performance building

- High Performance Building Envelope
 - R and U values well above minimum code requirements
 - Air-tightness testing during construction
- Heat Recovery and optimised pool hall AHU systems
 - High efficiency heat recovery to pool hall and pool backwash tank



Low Charge Ammonia Vs HFO Heat Pumps

Low Charge Ammonia Industrial Heat Pump

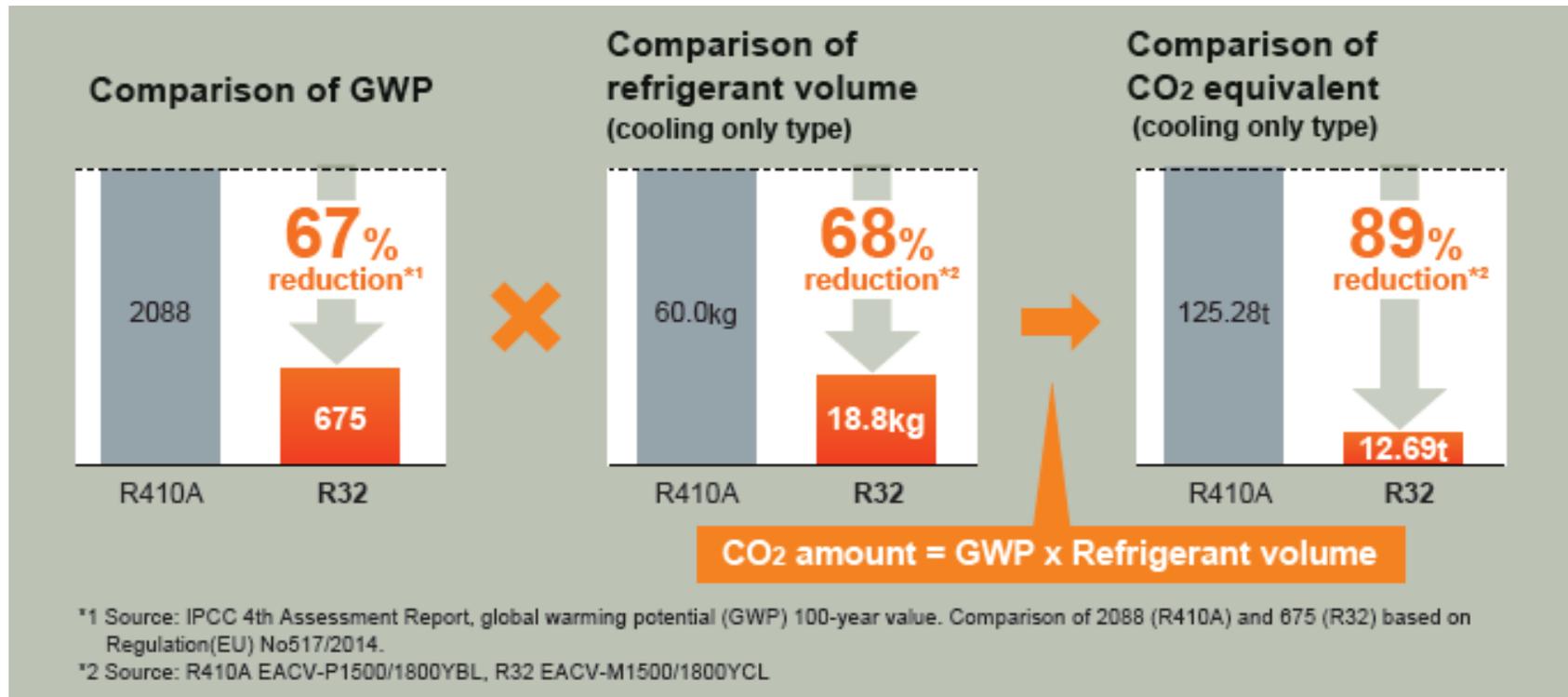


HFO Commercial Heat Pump



	LCA Industrial	HFO Commercial
Can meet all-electric objective	Yes	Yes
Energy Efficiency	Slightly Better	
Refrigerant	0 GWP	675 GWP
Maintainability	Arguably more maintainable	
Redundancy/Contringency		Arguably better redundancy
Cost		Cheaper

Refrigerant Considerations



Thermal Energy Storage

- Benefits
 - reduces required heat pump capacity and capital outlay
 - Enables heat pumps to be run at peak efficiency, more often
 - Enables load shifting for solar storage and/or peak arbitrage approaches
- Above ground or below ground?
- Potential for scaling on future projects to drive even further reduction in grid reliance



Next Steps for Brimbank

